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Both cancer resistant and cancer stem cells display an enrichment of proteins from metabolic pathways that not only suggests their dependence on mitochondria for survival but also proposes common strategy for anticancer therapy (on the top). In turn, bactericidal antibiotics target mitochondria and activate autophagy (in the center). Here, we provide the first *in vivo* evidence demonstrating that antibiotic linezolid in combination with autophagy blocker decreased tumor growth (in the bottom left corner). For details, see the article by Abad *et al.*, pages 231–244.

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